United States Department of Agriculture

Animal and Plant Health Inspection Service

FY 2006

USDA Wildlife Services Protects Natural Resources

Recovering Threatened and Endangered Species, Guarding Against Invasive Species, Preserving Wildlife and Game Habitats

Overview

Wildlife Services (WS), a program within the U.S. Department of Agriculture's Animal and Plant Health Inspection Service, provides Federal leadership and expertise to resolve wildlife conflicts that threaten the Nation's natural resources. WS works in every State to protect and preserve natural resources, such as wetland habitats, forests, and threatened and endangered (T&E) species that are vital parts of America's unique landscape. This protection includes operations directly protecting and enhancing natural resources as well as scientific and technological inquiries at the National Wildlife Research Center (NWRC), WS' study arm. Scientists there collaborate with field operations, developing strategies and products to improve natural resource protection.

Protecting Threatened and Endangered Species

In FY05, WS efforts assisted 151 threatened or endangered species on 131 projects conducted in 29 States, Puerto Rico, Guam, the U.S. Virgin Islands, and Cuba. In more than 95% of the projects, local T&E species either increased or remained stable. In addition to direct species-conservation projects, WS' beaver damage management in the eastern United States has secondarily benefited approximately 200 listed fish, mussels, and plants by maintaining natural riparian habitats and improving the water quality and water flow. Beaver projects generally are intended to assist landowners by reducing flooding.

While acknowledging that protection and recovery of listed species requires input from a wide range of contributors, WS is proud of its contribution in protecting many vital wildlife resources. Such activities can be categorized as either direct protection or recovery enhancement of endangered species.

Direct protection serves as a useful management tool in island/isolated ecosystems. Examples are protecting the avifauna of Guam and Hawaii from the brown tree snake or the endemic species of Puerto Rico from rats and mongoose. To protect five species of nesting sea turtles in Florida, control efforts targeted coyote, raccoon, skunk, and fox predators on beach nesting areas. WS and Federal and State partners work together to protect piping plover nest sites in Virginia and nesting sea turtles from fox and raccoon predation in North Carolina. Internationally WS worked with the U.S. Navy at the Naval Station at Guantanamo Bay, Cuba by removing invasive species that are impacting habitats for local-listed species such as the Cuban iguana.

In the ongoing recovery of the gray wolf throughout the United States, WS plays a crucial role, which can be categorized as recovery enhancement. As wolf populations become established, WS works to prevent livestock predation by packs and relocates or removes problem animals. By providing prompt and effective responses to wolf predation complaints, WS helps reduce livestock losses to wolves and promotes greater tolerance for wolves by affected local communities and ranchers. In Wisconsin and Michigan, where wolf numbers increase annually, WS works closely with State game agencies and U.S. Fish and Wildlife Service (FWS) to lessen the impact of expanding populations on landowners. The successful wolf reintroduction program in Yellowstone National Park can be directly attributed to cooperation among Federal and State agencies and local and regional landowners to enhance wolf recovery, prompting recom-

mendations for delisting both the eastern and western populations of gray wolves in the near future.

A similar recovery enhancement effort is being implemented by WS in the Southwest where reintroduction efforts for the southwest (Mexican) wolf is in its initial stages and landowner cooperation is critical to program success.

Preserving Wildlife and Game Habitats

Dramatic increases in beaver populations, associated with low demand for beaver products, have exacerbated the negative impact of beaver on hardwood timber, crops, and riverine habitats. Beaver activity can negatively impact bridges, roads, water control structures, municipal sewer systems, water treatment facilities, and even other aquatic species. Economists estimate beaver damage exceeds millions of dollars each year, greater than the costs caused by any other U.S. wildlife species. The economic damage due to beavers in the southeast alone is estimated to have exceeded $4 billion over a 40-year period. In Oklahoma, beaver damage complaints to WS increased by 250% since 1985. From 2001 to 2006, WS received more than 10,000 requests for assistance with beaver damage problems in North Carolina.

WS employs certified explosives experts who are frequently called upon to remove beaver dams that block water flow and cause flooding to forests and other wildlife habitat. In Wisconsin, WS continues to maintain more than 750 miles of pristine trout streams,

which had been seriously degraded by overabundant beaver populations and dam-building activities. WS manages beaver populations on these streams to eliminate the widespread flooding of forested land and to allow native trout to once again reproduce naturally.

Natural resources are damaged by more wildlife than just beavers. WS works to protect shell-fish beds in Connecticut from contamination by Canada geese. The double-crested cormorant, a bird species, can cause significant damage to natural resources. Over time, concentrations of cormorant nesting colonies can denude a site of all viable vegetation, as dramatically demonstrated on Great Lakes' islands, where cormorant populations have significantly increased in recent years. WS conducts damage control activities in several States to protect the nesting habitats of other colonial birds from cormorant impact and conducts research to determine the extent of the damage on native Great Lakes region sportfish populations caused by the birds' voracious appetite.

WS works to protect natural resources and to assist State wildlife agencies and private game ranches. These efforts enhance opportunities for the hunting and fishing public to enjoy species that are impacted by predation and other factors. WS currently conducts programs in eight States to bolster populations of game and sport species. For example, programs have been implemented to revive declining deer herds in several Western States. In the Southeast work is underway to determine methods to restore bobwhite quail populations, which have steadily declined. WS' work to control feral pig populations is expected to benefit natural resources because that invasive species can destroy riparian plants and topography as well as compete with native wildlife for limited food resources.

Protection From Disease

Disease surveillance and removal of potentially infected game species can improve the long-term health of wildlife populations. Diseases in wildlife concerns WS, both those limited to animals and those that can affect humans. Research is underway to develop methods to mitigate and manage wildlife diseases and to identify bacteria and other pathogens that may cross from wildlife reservoirs. Research focuses on development of surveillance and monitoring techniques as well as effective and safe vaccines, barriers and other methods to reduce or eliminate disease transmission. Among WS programs are an oral vaccine program to limit the geographic spread, and eventually eradicate, rabies in wild raccoons. Another example is chronic wasting disease (CWD), an always fatal, wasting condition apparently confined to cervids, such as elk, white-tailed deer and mule deer.

Managing Invasive Species

WS plays a central role in several initiatives being developed by the Federal Invasive Terrestrial Animals and Pathogens Committee (ITAP). ITAP facilitates information gathering, planning and action implementation among various Federal, State, public and private entities, which pursue invasive species management of terrestrial animals and pathogens. During FY06, WS chaired ITAP's Vertebrate Invasive Species Subcommittee (VISS).

WS predator management efforts are especially important in protecting Federally listed species and preserving island ecosystems, such as Hawaii, Puerto Rico, and San Clemente Island, California. Nonnative, or invasive, predators can devastate island ecosystems where a lack of natural enemies and resource competition can allow invasives to thrive, simultaneously destroying native wildlife. WS' research efforts target these introduced, invasive species, especially rodents, a main cause of damage to island habitats. This research has led to development of more efficient predator removal techniques, allowing WS to target only those predators directly impacting populations of T&E species.

One of the most ecologically damaging invasive species is the brown tree snake (BTS). Accidentally introduced to Guam in the late 1940s or early 1950s, the BTS has caused extensive economic and ecological damage to the island. In just half a century, the BTS has exterminated most of Guam's native forest birds and greatly reduced its population of fruit bats and native lizards. While managing the BTS population on Guam, WS actively works to prevent its spread to other Pacific islands, especially Hawaii. Efforts are concentrated at military and sea ports and commercial warehouses. WS uses specially-trained Jack Russell terriers to inspect departing cargo for "hitchhiking" snakes and sets specially-designed snake traps around cargo areas. Since the BTS program began in 1993, more than 5,000 snakes have been removed from Guam's ports each year.

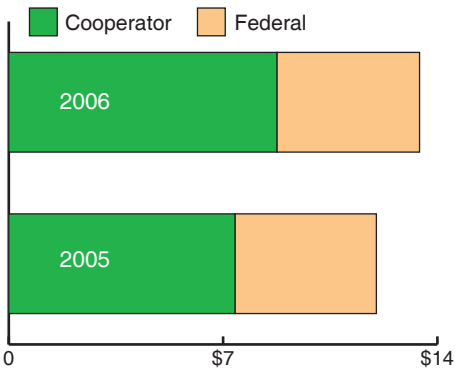
BTS is not the sole invasive animal threatening the Nation's natural resources. WS is currently engaged in managing two invasive frog species, introduced into Hawaii from the Caribbean about 10 years ago along with shipments of nursery plants. These frogs compete with native birds for prey and are significant predators of local Hawaiian invertebrates. WS has investigated potential nonlethal and lethal management methods, including small scale trapping, hand capture, and the development of pesticides utilizing caffeine and citric acid.

In Hawaii, WS cooperates with public and private agencies to control feral hogs that prey on several species of endangered plants, tree snails, and forest birds. WS' mongoose control work has had a tremendous impact on the conservation of the entire Puerto Rican parrot population. During FY06, WS' NWRC and Florida WS operational staff worked with a State agency to launch an eradication program targeting the invasive Gambian pouched rat, which threatens native species in the Florida Keys. They also provided valuable assistance to protect natural resources in the Everglades when invasive Burmese pythons were identified as a major threat to many wild species. Other T&E species, such as the western snowy plover, the California clapper rail, and the salt marsh harvest mouse are protected by activities conducted by California WS to control damage caused by various invasive carnivores.

Natural Resources Protection Statistics

- 151 threatened or endangered species were protected on 131 projects conducted in 33 States or other localities.
- In more than 95% of the projects, local T&E species populations either increased or remained stable.
- Beaver damage management restored thousands of miles of riparian habitats for more than 200 wildlife or plant species.
- Economic damage from unchecked beaver activity in the Southeast U.S. alone was estimated at $4 billion over 40 years.
- WS projects are enhancing sport hunting and fishing species, such as deer and quail.

Expenditure for Natural Resources Protection (Millions)



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FY 2006

USDA Wildlife Services Protects People, Wildlife

National Rabies Management Program Seeks to Control, Eliminate Virus in Raccoons & Other Wildlife

Overview

The nature of rabies in the United States has changed dramatically in the past century, with about 92% of all reported animal cases observed in wildlife in 2005, predominantly wild carnivores and bats. Prior to 1960, reported cases primarily came from domestic animals. This change has elevated rabies to a prominent concern within Wildlife Services in its role of protecting people, agriculture and wildlife.

The number of human deaths in the U.S. has dropped from 100 per year to one or two annually in recent years. Rabies, a preventable viral disease in humans, most often is transmitted through the bite of a rabid animal. The rabies virus infects the central nervous system, causing altered brain function and behaviors and, ultimately, death. Post-exposure protective treatment is almost universally effective, with human deaths occurring in those who do not seek treatment because they don't recognize having been exposed to the virus.

The cost of living with rabies in America is high and growing, exceeding $300 million per year for disease detection, prevention and control. The trauma of rabies exposure and treatment is significant but difficult to calculate. Health care, education, vaccination, and animal control needs associated with rabies are the driving forces behind the increases. These costs are expected to continue rising if rabies is not prevented from spreading.

Minimizing rabies in domestic animals occurred through governmentally-endorsed vaccination programs for companion animals. Although giving vaccine injections to wildlife isn't feasible on a broad scale, WS has implemented a National Rabies Management Program to combat the spread of rabies. With raccoon rabies accounting for 39.5% of reports in 2005, WS focused on coordinated oral rabies vaccination (ORV) projects targeting raccoon rabies in 15 Eastern States. In addi-tion, WS conducts cooperative ORV projects targeting canine rabies in Texas, bat variant rabies in skunks in Arizona, and other rabies related projects.

To achieve the objectives of the National Rabies Management Program, WS collaborates with a variety of organizations to carry out ORV projects, which help minimize risks to public health and safety. Through these projects, ORV baits are distributed within targeted areas to vaccinate specific wildlife populations against the disease. Currently, orally administered rabies vaccines are the only available technology to strategically contain and eliminate

variants specific of the rabies virus in the United States. Generally, the ORV baits are dropped from planes in sparsely populated areas. The American public, livestock producers, pet owners, and wildlife are all beneficiaries of these innovative programs.

Rabies Management in the Eastern United States

Since 1997, WS has worked cooperatively with local, State, and Federal governments, universities and

other partners to address this public health problem by distributing ORV baits in targeted areas throughout the United States. Currently, the raccoon rabies variant is found only in the Eastern United States, where it accounts for approximately 50% of reported rabies cases.

An ORV zone has been established stretching from Maine to Alabama to stem the westward spread of the raccoon variant of rabies. During 2006, approximately eight million baits were distributed in 15 states along the Appalachian Mountains to reinforce this zone. In setting up that zone, WS wildlife biologists made sure to incorporate features of the natural landscape that can help the containment effort (e.g., mountain ranges and large bodies of water that act as natural barriers).

Smaller scale projects are being conducted primarily on peninsulas to determine if rabies can be eliminated through the integration of ORV on landscapes with favorable zoogeographic features (e.g., water surrounding the peninsula should prevent movement of raccoon rabies). These projects occur in Florida, Maryland, New Jersey, New York and Massachusetts

In 2006, the program took an initial step toward the program goal of eliminating raccoon variant rabies by shifting the Appalachian Ridge vaccination zone five miles to the east in Virginia and West Virginia. Enhanced surveillance in this area has helped confirm that WS and cooperator efforts have had an effect on containing raccoon variant rabies from spreading to the west.

Rabies in the Southwest

Since 1995, WS has been involved with a cooperative ORV program in Texas to prevent canine rabies in coyotes and a unique variant in gray foxes from spreading. Since 2002, the program has maintained a canine rabies-free zone in South Texas. Vaccination efforts each year help to ensure this milestone is maintained. In 2006, 2.8 million baits were distributed over more than 56,000 miles as part of this effort, which has distributed 24 million baits since its inception. Texas reported no cases of the canine variant in 2005 and eight cases of the grey fox variant, compared to 22 in 2004.

Research into ORV through a skunk and feral dog placebo bait study and a skunk behavioral research project is being conducted in Arizona. The placebo bait studies were conducted to help determine which bait type was more appealing to skunks and feral dogs for the use of oral rabies vaccines. The skunk behavioral research project was designed to learn more about skunk biology and ecology related to a rabies outbreak in 2001. Skunks were fitted with radio telemetry collars so their movements could be tracked to learn more about their interactions with other animals and denning habits.

International Efforts

Since wildlife and the rabies virus do not know borders, the National Rabies Management Program has been working with government officials from Canada and Mexico to prevent the further spread of rabies across international borders. The primary objective includes strengthening existing working relationships among the three countries by focusing on increased rabies surveillance and communication. The three countries are working towards a North American Rabies Management Plan, as a framework to facilitate these activities.

At present, WS and cooperators in the Texas Department of State Health Services are distributing oral rabies vaccination baits along the Mexico border targeting both coyotes and grey foxes. WS is working from Maine to New York and with Canadian counterparts at the border to distribute baits. These efforts help to establish rabies-free zones along international borders and allow WS and partners to focus more attention on eliminating raccoon and fox rabies within the United States.

Future

WS has been vaccinating raccoons for more than 10 years and to coyotes for even longer. The program is dedicated to containing and eliminating rabies in raccoons and protecting people and agriculture.

Canine rabies has decreased from a high of 166 confirmed cases prior to ORV to zero in 2006. However, canine rabies could re-emerge from Mexico, where it continues to persist outside urban areas. Therefore, a 40-mile wide zone is currently being maintained to prevent reinfection. This zone has been challenged two times in the Laredo vicinity, underscoring its importance in disease management until alternate strategies may be available, including more aggressive rabies surveillance and control in Mexican Border States.

ORV is being applied to contain and eliminate the rabies virus in gray foxes in the west-central part of Texas. Current schedules indicate that elimination may be possible in four to six years. Nevertheless, the potential of reemergence from Mexico will remain as a challenge.

The success in Texas has shown elimination may be possible. The slight but perceptible shift eastward in a small section of the Eastern raccoon program offers a glimpse towards this goal. Under contingency actions where rabies poses a high risk of spreading to new areas, the ORV and enhanced surveillance may be integrated with trap-vaccinate-release and local population reduction of rabies reservoir species.

WS continues with research efforts into more efficient bait methods, vaccines and wildlife ecology to ensure delivery of the best possible cooperative program.

Expenditure for National Rabies Management Program (Millions)